

Western Electric Company, Inc.,  
Equipment Engineering Branch, Hawthorne.

(2 Pages) Page #1.  
Issue 4 - BT-431278. 736309  
Replacing all previous issues. (\*)  
July 27, 1923. (\*)

This M. of O. prepared from Issue 25 of T-431278

*Ramner*

METHOD OF OPERATION  
SIGNAL CIRCUIT REGISTER

Overflow and Peg Count, Panel Machine Switching System.

DEVELOPMENT

1. PURPOSE OF CIRCUIT

- 1.1 This circuit is used to provide an automatic means for registering calls over various groups of trunks, calls incompleting on account of all trunks of a group busy and for a manually or automatically operated register circuit at operators positions.

2. WORKING LIMITS

- 2.1 Since the operation of this circuit is controlled by local selector circuits or at local operators positions, no working limits are specified.

OPERATION

3. PRINCIPAL FUNCTIONS

- 3.1 To register overflow and all busy conditions.  
3.2 To register "A" and "B" operator's and chief operator's peg count.

4. CONNECTING CIRCUITS

- 4.1 Standard incoming and cordless selectors.  
4.2 Standard district selectors.  
4.3 Standard office selectors.  
4.4 Standard "A" and "B" senders.

DESCRIPTION OF OPERATION

5. This circuit may be used with district or office selector to record the number of times the selectors in each group go to the overflow terminals. In this case the lead is connected to the tip overflow terminal. When a selector comes to rest on the overflow terminals, its sequence switch advances to overflow position and in so doing, connects ground from the Z commutator, through the tip terminal, windings of the (L) relay and 5-P register to battery. The (L) relay operates and locks to ground on its armature to provide sufficient time to insure the complete operation of the register. When the register is fully operated it short-circuits the winding of the (L) relay, which releases, removing the locking circuit.

6. As a selector group register circuit being connected through cams to each selector in the group and is operated each time a selector is used, thus giving a record of the total number of times all the selectors in a group are used.
7. As a peg count register, the circuit is connected to manually operated keys at the "A" or "B" positions. In each case ground is connected to the circuit and it functions as described in paragraph 5.
8. When the circuit is used as a district or sender "All Circuits Busy" register circuit. The circuit is connected through relay contacts or cam cuttings in each circuit of the group in series. Each individual contact or cam cutting is closed when its corresponding circuit is "off normal" and when all circuits in the group are busy, ground is closed through to the register, which operates.
9. When ("b" wiring) is used as an overflow register with incoming or cordless selectors, when the design of the selector circuit is such that ground is connected directly to the ringside of the fundamental circuit through a cam cutting, when the selector switch is in the "Selection Beyond" position. This condition, would cause the operation of the stepping relay in the associated sender circuit and the possible false operation of the register as the selector switch passed through "Selection Beyond". The (R) relay is slow to operate, preventing its own operation, and is also of sufficiently high resistance to prevent the operation of the stepping relay while the selector passes through that position. When the selector switch enters the "Ringing" position, ground is connected to the tip terminal, operating the "R" relay. The operation of the (R) relay operates the 5-M register. When the selector advances to normal, the (R) relay and 5-M register release.
10. When ("a" wiring) is used as an overflow register with incoming or cordless selectors which do not function as those described in paragraph 9. In this case the 5-M message register is connected directly to the tip terminal.
11. The circuit may be used as a cordless peg count circuit being connected to all cordless assignment keys of the same trunk group. Each time a cordless assignment key associated with a trunk group to which the cordless peg count circuit is connected, is operated the (L) relay and 5-P message register operate as in paragraph 5.

ENG.--B.F.M.

8/31/23.

MG

CHECKED BY: J.I.

APPROVED - H.L. MOYNES

E.R.C.

(2 Pages) Page 2  
Issue 3 - BI-431278  
Replacing all previous issues  
October 14, 1921.

CIRCUIT REQUIREMENTS

	<u>OPERATE</u>	<u>NON-OPERATE</u>	<u>RELEASE</u>
162 D-75747 (R)	Readj. .0075 amp. Test .0079 amp. W.C.C. .0079 amp.	Readj. .005 amp. Test .0047 amp.	
A50	Readj. .040 amp. Test .056 amp. W.C.C. .071 amp.		Readj. .020 amp. Test .010 amp.
5-M. Message Register	Test .036 amp. W.C.C. .066 amp.	Test .032 amp.	
5-P Message Register	Test .070 amp. W.C.C. .071 amp.	Test .060 amp.	

ENG.--CHMcC-JO  
5-23-22.

CHK'D.--WJT-CWP

APPROVED C.L.SLUYTER, G.M.L.

